Australian environmental and natural resource policy – from the Natural Heritage Trust to Caring for our Country

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Abstract

The Natural Heritage Trust and the National Action Plan for Salinity and Water Quality were major national policies focused on land and water degradation and nature conservation in Australia. These programs fell a long way short of achieving their stated goals. It is proposed that to be able to spend their considerable public funds in cost effective ways, they would have needed a number of particular characteristics. Among other things, they needed to prioritise investments well, consistent with an appropriate role of government, and based on analyses that integrated good quality bio-physical and socio-economic information. They needed to select policy mechanisms that would be appropriate for the circumstances. The incentives created by program rules and procedures should have encouraged environmental managers responsible for program delivery to pursue environmental outcomes cost-effectively. However, the programs did not satisfy these criteria. Prospects for improving matters in the new national program, Caring for our Country, are discussed. It will be difficult to deliver outcomes cost-effectively in the new program for reasons that include capacity constraints in government agencies, time pressures on policy development, and political priorities of governments.

Key words: policy evaluation, policy mechanism choice, policy implementation

Introduction

Through the establishment of the Natural Heritage Trust (NHT) (1997-2008) and the National Action Plan for Salinity and Water Quality (NAP) (2001-2008), the Australian Government has invested large amounts of public funds in environmental and natural resource management: around A$3.7 billion over 11 years. With the completion of these programs in June 2008, it is timely to consider their effectiveness and to identify lessons for current and future programs. In this paper I consider a number of characteristics that programs such as these should have if they are to deliver environmental outcomes cost effectively. The performance of the programs in relation to these characteristics is assessed. Lessons for the new Caring for our Country program are highlighted, and prospects for improved outcomes are assessed.

Background to NAP and NHT

The two programs were largely delivered through 56 regional natural resource management bodies, which I will refer to as Catchment Management Organisations (CMOs). Funds from the Australian Government were provided conditional on matching funds being provided by state governments. CMOs were responsible for developing and implementing integrated regional plans for investment in the environment, natural resources and sustainable agriculture. They appointed their own staff, but also relied on community participation and support by state government agencies. The approach was intended to be based on the idea of Integrated Catchment Management, where managers plan and prioritise based on a detailed consideration of physical, biological, economic and social information.

Each regional body submitted their strategies and plans to a Joint Steering Committee in their state for evaluation and accreditation. In practice, the two programs were largely managed as one joint program.

Each of the programs had a number of smaller additional elements, but this paper will focus on the main regional components delivered through CMOs.

Basis of the evaluation

There were a number of government reviews of the programs, and in addition the government commissioned several consulting reports evaluating aspects of the programs. A number of reviews were conducted by the Australian National Audit Office (e.g. Auditor General 2004, 2008). These tended to focus on administrative aspects of the programs, but also addressed the likelihood of achieving the programs' targets and the quality of those targets. There was a review by the House of Representatives Standing Committee on Science and Innovation (Parliament of the Commonwealth of Australia 2004), which addressed the use of science by the salinity program. The Senate References Committee on Environment, Communications, Information Technology and the Arts conducted a broad-ranging review of salinity policy looking at 'whether goals of national programs to address salinity have been attained' (The Senate 2006, p. ix) and following up the earlier review by the House of Representatives Standing Committee. And finally, there were commissioned reviews by independent consulting firms, including one evaluating governance arrangements of CMOs (Walter Turnbull 2005), another evaluating the salinity outcomes of NAP funding delivered through CMOs (SKM 2006), and an overall evaluation of phase 1 of the NHT (Hassall and Associates 2005). My assessment of the programs will draw on each of these reviews.

In addition, this assessment is informed by scrutiny of numerous other program documents at the program web sites (www.nht.gov.au and www.napswq.gov.au), discussions and meetings with national and state government policy officers, focus group discussions with CMO staff and stakeholders (Marsh et al. 2008), surveys of CMOs (Seymour et al. 2008), interviews with landholders (Wilkinson 2008), research on the economics of sustainable management strategies (e.g. Bathgate and Pannell 2002; Kingwell et al. 2003; Nordblom et al. 2006), research into adoption of those strategies (Pannell 2001c; Pannell et al. 2006), insights from the development of decision frameworks (Ridley and Pannell 2005; Pannell 2008) and experience in applying those frameworks in close partnership with CMOs (Roberts and Pannell 2008).

Use of scientific technical information

Environmental problems are often technically complex and uncertain. Sound decisions about their management need to be based on good knowledge about (a) the degree of threat or damage to environmental assets at risk, and (b) the extent to which this threat or damage can be reduced by particular changes in management. In many cases, generic knowledge about an issue is not sufficient – we need locally specific knowledge.

The NAP and NHT programs did not require CMOs to make good used of scientific information when formulating their investment priorities and plans. In general, CMOs did account reasonably well for threat or damage, but with very few exceptions they did not use adequate information

about the link between proposed actions and environmental outcomes. They were not provided with technical support to do so and they were not required to demonstrate that they had done so in the course of plans being accredited by government. Concerns about lack of science in the programs were identified repeatedly in the various inquiries and reviews commissioned by government. For example, it was highlighted that decisions should be "based in sound, up-to-date science" (The Senate, 2006, p. 221), that in dryland areas, "links between actions and resource condition change … are often not confidently quantified" (SKM, 2006, p. 1), and that "NAP/NHT have only been partly successful in enabling the flow of scientific and technical information into the catchment management planning process" (Chartres et al. 2004, p. 4). Furthermore, CMOs were highly constrained by the programs in their investment in research to collect missing information required for sound decision making. Funding was expected to be spent on 'on-ground works' or extension.

Use of socio-economic information

If the works or changed practices needed to protect an environmental asset require changes in behaviour by private land or water managers, investment managers need to consider whether those works will be attractive or unattractive to the people who would have to adopt them. There are many well understood reasons why conservation practices can be unattractive to land and water managers (Pannell et al., 2006). If the practices are highly unattractive in a particular case, it will be expensive and difficult to get them adopted, and the viability of investing in that environmental asset will be reduced. It is important to appreciate that, even if the works are relatively attractive when implemented at small scale, they may be highly unattractive at large scale (Bathgate and Pannell 2002).

Seymour et al. (2008) found that CMOs have little capacity in the use of social or economic information relating to landholder behaviour. The programs did not provide carrots, sticks or support to fill this gap. "Additional attention needs to be directed to issues associated with farm economics and profitability in natural resource planning" (Chartres et al., 2004, p. 3). In general, the likely response of landholders to interventions was not considered in any depth, if at all. At national, state and regional levels, it was generally naively assumed that, with sufficient effort and skill on the part of extension agents, landholders would respond on an adequate scale to extension and the payment of small, temporary grants. The fact that they often did not do so could readily have been foreseen. Pannell (2001a, 2001b) highlighted that in many regions there was a lack of sustainable land-management practices that were highly adoptable by farmers. Pannell et al. (2006) argued that "If such innovations cannot be identified or developed, there is no point in falling back onto communication. Promoting inferior practices will only lead to frustration for all parties." (p. 1421).

Appropriate prioritization of potential projects

There is a strong tendency for environmental programs to attempt to achieve too much, allocating too few resources to too many projects. The projects they do fund tend to be of widely differing merits. Some of the investments receiving funds are worthwhile, and some are not. Given that project budgets are generally very small relative to levels that would be required to manage environmental degradation comprehensively, the need for tight and careful targeting of investments is obvious.

The highest priority environmental investments should have at least these four characteristics: they should relate to (a) particularly valuable environmental assets, (b) facing high threat or high current degradation, (c) with high feasibility of reducing that threat or degradation at reasonable cost, (d) with the required works being reasonably attractive to relevant land or water managers. If even one of these elements is neglected, there is a high risk of selecting poor investments.
In the NAP and NHT, no consistent framework for planning and prioritization was provided to CMOs. Each developed its own approach and, not surprisingly, there was wide variation between regions in the approaches used. None, as far as I am aware, considered all four of the above required characteristics. Again, this deficiency was recognized in official inquiries (e.g. Hassall and Associates 2005), but not redressed. "Close attention must be paid to … actively encouraging regions to put in place measures that are well targeted" (Auditor General, 2004, p. 15). It was recognized that investment decisions should be "outcome focused" and "subject to a cost-benefit analysis" (The Senate, 2006, p. 221).

Good prioritization requires good information and good analysis, which takes time. Programs need to be run with the patience to allow this to happen. In the NAP and NHT, CMOs were under severe time pressure to complete their planning processes and commence spending the money, irrespective of the quality of those plans.

Ridley and Pannell (2005) developed an investment framework for salinity (called SIF3) which explicitly addresses all four characteristics. The Senate (2006) recommended that governments should "keep a watching brief" on our framework, "with a view to potentially implementing it (or a modified version of it) across the country." (The Senate, 2006, pp. 229-230).

Balance of investment between current works and technology development

"For some environmental issues, the real challenge is to find or develop innovations that are not only good for the environment, but also economically superior to the practices they are supposed to replace." (Pannell et al. 2006, p. 1421). In my view, this is under-recognised, including by economists. If economists do consider innovation, we tend to take the view that the right policy settings will foster innovation among polluters, resulting in creation of lower-cost methods for pollution abatement. This may work for some sorts of pollution, but for the sorts of environmental problems covered by the NAP and NHT, (often highly diffuse or dispersed problems caused by many small businesses) we cannot expect that they would be able to develop the sorts of new land-use options that would be required. The task would require research on a scale, and with a level of expertise, that is far beyond any individual or group of farmers. The NHT and NAP programs made minimal investments in this area.

Again, the need for more investment in this area was well recognized in official inquiries but not acted on. "Limited availability of commercially attractive treatment options for regions" is a "key risk that require[s] careful management" (Auditor General, 2004, p. 14). "The Committee recommends that the Australian Government give greater emphasis through its investments in salinity science to develop new, economically viable land and water use systems." (Parliament of the Commonwealth of Australia, 2004, p. 167).

Balance of investment between mitigation and adaptation

Where mitigation is not justified on benefit-cost grounds, there may be net benefits in investing in adaptation to a degraded environment. This becomes particularly important in problems like dryland salinity where much degradation is physically impossible to avoid, and where even more degradation is not economically efficient to avoid. In the original NAP program documents, the focus was entirely on mitigation. Although there were eventually some investments in adaptation, the appropriate balance between the two was never properly considered in my view.

Use of appropriate policy mechanisms

Pannell (2008) shows that the best choice of policy tool depends on the mix of public and private net benefits from proposed changes. Therefore policy mechanism choice needs to be sensitive to local conditions, as well as to the general characteristics of a problem. In the NAP and NHT programs, the majority of funds intended to promote change were spent on extension and small temporary grants. As argued earlier, these were often used in circumstances where they could not deliver environmental outcomes, often because they were used to promote conservation practices that were not adoptable.

Avoidance of adverse side-effects

In some circumstances, works undertaken to improve one natural resource problem can have negative consequences for another. For example, many trees were planted with the intention of reducing saline discharge into rivers in circumstances where they had a more important negative impact on the yield of fresh surface water into the same rivers (e.g. Nordblom et al. 2006). Because the NAP and NHT programs did not deal adequately with the science of cause and effect, this was largely unrecognized by CMOs, who provided payments to encourage some actions that should have been discouraged.

Monitoring and enforcement of compliance

In circumstances where the preferred conservation practices are attractive to landholders, CMOs do not need to use incentive-based mechanisms to encourage adoption, and consequently they do not need any enforcement mechanism. However, where an incentive mechanism is used to compensate for the private net costs of a conservation practice, or to prevent adoption of an environmentally damaging practice that is attractive to landholders, monitoring and enforcement needs to be part of the program. NAP and NHT had little monitoring and, as far as I am aware, no mechanism for enforcing agreed changes in land management, other than refusing to extend payments to a second phase. In practice, even this option was not always used.

Setting appropriate targets

Environmental targets should be consistent with the known bio-physical information about the asset's response to management, the known behavioural responses of land and water managers to policy interventions, and the resources available under the program. Clearly, you cannot select such targets unless you have undertaken high-quality analysis of the investment options. In the NAP and NHT, the program required CMOs to specify targets, but did not require those targets to be realistic. Indeed, in some ways realism was discouraged within the guidelines imposed. Not surprisingly, "80 out of the 163 resource condition targets identified in the plans [of eight regions

examined] did not meet the identified criteria in terms of being measurable or having a specific timeframe" (Auditor General, 2008, p. 19).

There was also a lack of realistic targets in the high-level goals of the programs: "The consensus from consultations during the course of the audit, indicates that this will not be possible [to meet the program goal to stabilise or reverse salinity trends] within the eight-year timeframe originally envisaged for the NAP" (Auditor General, 2004, p. 18). "Where the impact [of NAP investment] on resource condition is identified by regional bodies, the expected results were often low (frequently less than one per cent of the longer-term resource condition target)" (Auditor General, 2008, p. 19-20).

Monitoring and evaluation linked to management

Good evaluation is closely related to good planning. If the analysis has been done to select investments and establish high quality targets, monitoring and evaluation is relatively straightforward, and results can feed into ongoing management decisions.

Many CMOs did not understand how to undertake monitoring and evaluation so that they provided sound and useful data for evaluation and ongoing management (SKM, 2006). The programs did not require them to do so. Monitoring in NAP and NHT focused on accountability for funds spent, but neglected the achievement of environmental outcomes. This focus sent a message to CMOs that the government was not really concerned about the achievement of outcomes, only with spending the money. Weakness of monitoring was also observed at the program level: "At the present time it is not possible to report meaningfully on the extent to which these outputs contribute to the outcomes sought by government" (Auditor General, 2008, p. 16).

Supporting and creating appropriate incentives for environmental managers

In a program where decisions about actual investments are devolved to individuals or groups separate from the funding body, it is important for the funding arrangements to be set up in a way that provides incentives for environmental managers to seek environmental outcomes cost effectively. Programs should also provide support to address important knowledge and skill gaps that managers may have.

As we have noted above, NAP and NHT provided inadequate support: "enhancing guidance to the regions must be given a higher priority" (Auditor General, 2004, p. 15). They also provided almost no incentives for CMOs to pursue environmental outcomes. Targets were not required to be realistic, and accreditation of plans was very weak, particularly in relation to their use of science and socio-economic information. The Senate (2006) recommended that Government should "strengthen the accreditation process for regional bodies" and "ensure that funding is conditional on rigorous investment planning" (The Senate, 2006, p. 221).

Consistency with an appropriate role for government

Broadly speaking, Government policy may seek to: (a) increase aggregate social welfare through reducing market failure; (b) protect or enhance publicly managed resources, (c) address areas of inequity, inequality or disadvantage; or (d) pursue political objectives to generate benefits to the

government. In evaluating any program, I assume that item (d) is to be judged inappropriate. For the NAP and NHT, specifically, I believe that item (c) is of minimal relevance. The key issues here, then, are the extent to which the programs were targeted to addressing market failures, their success in reducing them, and their contributions to protection or enhancement of publicly managed assets.

The main market failures relevant to the NAP and NHT programs are public-good problems (non-rivalry and non-price excludability) associated with externalities, or associated with information failures. For example, land management on one farm can cause negative externalities due to salinity affecting water resources, environmental assets, public infrastructure, or agricultural land on another farm. Information failures may arise, for example, if farmers are unaware of or have misperceptions about land management practices that would be in their interest to adopt.

Ostensibly, the NAP and NHT could be seen as targeting these market failures, through the payment of grants to farmers to internalize externalities, and the use of extension officers to promote changes in farming practices. However, a deeper assessment reveals problems in both areas.

For an intervention to be judged as efficiently managing a negative externality, its overall benefits must exceed its costs. In the case of the NHT, there was no evidence that particular investments under the program would generate positive net benefits for the community. In the case of the NAP, there was evidence that they often would not. Benefits of managing salinity are often small and they may be highly localized (Pannell et al., 2001). On the other hand, the costs of reducing externalities from salinity are often large, requiring very substantial changes in land management (e.g. Dawes et al. 2002; National Land and Water Resources Audit, 2001) and the recommended changes often have high opportunity costs (e.g. Kingwell et al., 2003) especially when applied at large scale (Bathgate and Pannell, 2002). Overall, the net benefits of acting to reduce salinity externalities would very often be negative. Identifying cases where they would be positive requires a detailed and sophisticated analysis. However, from the previous subsections it is clear that the program did not include or support such analysis.

As noted earlier, most of the advocated salinity-mitigation practices in most regions are unattractive to landholders for economic (Kingwell et al., 2003) or other (Pannell, 2001c) reasons. This means that farmers' non-adoption of these practices does not constitute an information failure, and so use of extension to promote these practices is not justified on a market-failure basis.

On the other hand, some investments in direct action by government, such as pumping saline groundwater to prevent discharge into the Murray River (River Murray Water, 2006), or pumping to lower saline watertables under rural towns in Western Australia (Department of Agriculture, 2004), seem much more likely to be justified on a benefit-cost basis. Unfortunately, investments of this type were the exception within the NAP and NHT, probably due to a view that they should be the responsibility of state governments. An assumption built into the program, presumably for political reasons, was that most funds should be directed to supporting land-use change on farms. It would have been better for the program to select policy approaches that were best suited to

local conditions for particular environmental problems, rather than building in assumptions about the policy mechanisms to be used.

The focus on farms also to some extent reflects that the programs were designed without adequate consideration or understanding of market failure concepts. For example, in the Natural Heritage Trust Act 1997, one of the stated purposes of the policy was to support "sustainable agriculture", defined to include "the economic viability of agricultural production". This seems to imply that pursuit of private economic benefits for farmers would be a legitimate investment under the program. In practice, the first phase of the program went too far in the opposite direction, avoiding private benefits to an extent that was illogical and counterproductive.

Caring for our Country

In March 2008, the newly elected Australian Government announced Caring for our Country, the program that is to replace several national programs, including the NHT and NAP. The new program has a budget of $2.25 billion over five years to deal with a wide range of environmental issues. Program documentation as of December 2008 includes a statement of intended outcomes from the program (Anonymous 2008a) and a one-year business plan (Anonymous 2008b).

Salinity is not a priority for investment in Caring for our Country. Indeed, it is barely mentioned in the program documentation. In 2000 salinity was viewed politically as a national crisis (Pannell 2005), warranting a dedicated program of $1.4 billion, but documentation for the new program includes not even a single project focused on the issue.

It is worth asking whether the design and delivery of the new program will be an improvement on the earlier programs. The rhetoric of the new program's web site and documentation appears promising, with an emphasis on "a business approach to investment, clearly articulated outcomes and priorities and improved accountability." On the other hand, program development in its early stages has been extremely rushed, as the Departments attempt to meet an unrealistic timeline imposed by their ministers. Also, intended outcomes should not only be clearly articulated – they should be based on sound and comprehensive analysis considering asset value, levels and timing of environmental damage, the technical and socio-economic feasibility of reducing damage, and costs. This has not occurred. It would have required agencies to commence their analysis well before the end of the previous program. However, such an approach has not been employed in Australian natural resource programs to date.

On the positive side, the set of principles for selection of projects, as published in the initial Business Plan, is considerably stronger than for any previous program. It remains to be seen whether the agencies will be able to put these principles into practice.

Constraints on program improvements

Policy officers designing programs for management of complex environmental problems should ideally have a good understanding of those problems and be able to draw on the scientific and socio-economic evidence about their management. In my observation, the scientific knowledge used to design the NAP was superficial, based on a highly simplified and stylized understanding of the problem, and not encompassing the latest relevant research. It did not involve effective integration of bio-physical and socio-economic information to design the program. I have found that many environmental policy officers in Canberra lack a deep knowledge of the environmental issues for which they are responsible. In part this is a consequence of the rapid movement of staff

between jobs and agencies that is the norm in Canberra. I believe that this is a very serious and under-recognised problem. Good quality environment policy cannot be developed by people who do not have very strong content knowledge.

A part of this problem is the time pressure under which policy officers typically operate. Policy development always seems to occur in an unseemly rush, which inevitably reduces the quality of the resulting policies. The rush could be reduced if agencies pre-emptively invested more time and resources in the sort of analysis required to make good decisions about policy priorities, before an existing program is concluded.

Overlaid on these problems are the political desires of governments. Governments are attracted to programs that involve as many voters as possible, and this may easily take precedence over the achievement of worthwhile environmental outcomes. Exacerbating this general tendency, over the past two decades, stakeholders have come to expect that support for environmental works will be broadly available to most land managers, and an attitude developed that it is crucial to engage the whole community to achieve worthwhile environmental outcomes. The obvious disconnect between this view and size of the available program budget has not been sufficient to change the views of many stakeholders, so that any effort to target investments more rigorously meets with strong resistance, and possibly political costs.

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